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## Machining & Manufacturing Technology

### Degree Pathway

An Associates of Applied Science Degree emphasizes preparation in the applied arts and sciences for careers, typically at the technical or semi-professional level. This degree totals 63 credits. Consult with an advisor for more information.

(T) are Systemwide Transfer Courses

(★) are recommended for this degree pathway.

Required Courses			
Course ID	Course Title	Credit Hours	Notes
MC104	Machine Technology Math	2.00	Fall, Spring
MC110	Bench Work	1.00	Fall
MC111	Print Reading	3.00	Fall, Spring
MC112	Quality Control and Inspection	1.00	Fall, Spring
MC113	Metallurgy	1.00	Spring Prereq: MC110 BenchWork with a Grade of C or higher, and MC115 Machining I with a Grade of C or higher.
MC114	Machine Tool Processes	1.00	Spring
MC115	Machining I	3.00	Fall
MC116	Machining II	3.00	Fall, Spring Prereq: MC110 BenchWork with a Grade of C or higher, and MC115 Machining I with a Grade of C or higher.
MC117	CNC Operations	3.00	Fall Prereq: MC115 Machining I with a Grade of C or higher, or Departmental Consent.
MC204	Machine Practices I	3.00	Fall Prereq: Departmental Consent.
MC205	Machine Practices II	3.00	Spring Prereq: Departmental Consent, or MC204 Machine Practices I w/Grade of C or higher.
MC206	CNC Operations-Advanced	3.00	Spring Prereq: MC117 CNC Operations.
TR120	Work Ethics	2.00	Fall, Spring, Summer
TR121	General Industrial Safety/OSHA10	1.00	Fall, Summer
Electives			
Course ID	Course Title	Credit Hours	Notes
General Education Options		6.00	
AR101	Art Appreciation T	3.00	Fall, Spring, Summer
AR104	Art History: Paleolithic to Medieval T	3.00	Fall
AR105	Art History: Renaissance to Modern T	3.00	Spring
AR106	Art in the Elementary Classroom T	3.00	Fall, Spring
AR110	Drawing I T	3.00	Fall
BI100	Basic Concepts for Allied Health Studies	1.00	Fall, Spring, Summer
BI101	General Biology T	4.00	Fall, Spring, Summer
BI102	Ecology of Environmental Problems T	3.00	Spring

BI103	Human Anatomy and Physiology <a href="#">▶</a>	6.00	Fall, Spring, Summer Prereq: BI100 or BI101 or BI104 or BI105 or BI112 w/Grade of C.
BI104	Biology I <a href="#">▶</a>	5.00	Fall, Spring Prereq: CH101 General Chemistry, or CH105 Chemistry I with a C or Higher.
BI105	Biology II <a href="#">▶</a>	5.00	Spring Prereq: BI101 General Biology, or Departmental Consent, or BI104 Biology I.
BI112	General Microbiology <a href="#">▶</a>	4.00	Fall, Spring, Summer Prereq: (BI101,BI103,BI104,BI105)BI107 is not a valid prereq code.
BI115	Basic Radiation Biology	2.00	Spring Prereq: BI103 Human A&P.
BU105	Introduction to Business <a href="#">▶</a>	3.00	Fall, Spring, Summer
BU107	Personal Finance <a href="#">▶</a>	3.00	Fall, Spring, Summer
BU108	Business Mathematics	3.00	Fall, Spring, Summer
BU109	Business Communications <a href="#">▶</a>	3.00	Fall, Spring, Summer
BU118	Introduction to Leadership <a href="#">▶</a>	3.00	Fall, Spring
CH101	General Chemistry <a href="#">▶</a>	5.00	Fall, Spring, Summer Prereq: MA106 College Algebra, or MA117 Contemporary Math, or MA108 Elements of Statistics.
CH105	Chemistry I <a href="#">▶</a>	5.00	Fall, Spring Prereq: ACT Math Score of 21 or higher, or MA105 or higher math, or Accuplacer NextGen QuantReason, Alg,Stats Score 263 or Above, or Accuplacer Math Score of 81+.
CH106	Chemistry II <a href="#">▶</a>	5.00	Spring Prereq: CH105 Chemistry I with a C or Higher.
CH108	Principles of Organic and Biochemistry <a href="#">▶</a>	5.00	Fall Prereq: CH105 Chemistry I, or Departmental Consent.
CH201	Organic Chemistry I <a href="#">▶</a>	5.00	Fall Prereq: CH106 Chemistry II.
CH202	Organic Chemistry II <a href="#">▶</a>	5.00	Spring Prereq: CH201 Organic Chemistry I.
EC100	Macroeconomics <a href="#">▶</a>	3.00	Fall, Spring, Summer
EC101	Microeconomics <a href="#">▶</a>	3.00	Fall, Spring, Summer
ED105	Success Seminar/College Orientation	1.00	Fall, Spring, Summer
ED201	Introduction to Education <a href="#">▶</a>	3.00	Fall, Spring Prereq: a GPA of 2.5 or higher, and PS100 General Psychology.
ED201L	Introduction to Education Practicum <a href="#">▶</a>	1.00	Fall, Spring Prereq: a GPA of 2.5 or higher, and PS100 General Psychology.
EN100	English Composition IB <a href="#">▶</a>	3.00	Fall, Spring, Summer Prereq: EN098 Intro to College Writing with a grade of C or higher, or Accuplacer Next Generation Writing Score of 240 to 254, or HS GPA over 2.25, or ACT English Score of 17 to 19.
EN101	English Composition IA <a href="#">▶</a>	3.00	Fall, Spring, Summer Prereq: HS GPA over 3.0, or Accu NG Writing Score 255+ & Accu NG Reading Score 255+, and ACT Reading Score of 18 or above, or ACT English Score of 18 or above.
EN102	English Composition II <a href="#">▶</a>	3.00	Fall, Spring, Summer Prereq: EN101 English Composition IA with a grade of C or higher, or EN101H English Comp IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
EN107	Business English Grammar & Composition	3.00	Fall, Spring
EN108	Career and Technical Writing	3.00	Fall, Spring
EN120	Children's Literature <a href="#">▶</a>	3.00	Fall, Spring
EN121	World Mythology	3.00	Spring Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
EN128	Introduction to Creative Writing <a href="#">▶</a>	3.00	Fall, Spring
EN201	Introduction to Literature <a href="#">▶</a>	3.00	Fall, Summer Prereq: EN100 English Comp IB with a grade of C or higher, or EN101 English Composition IA with a grade of C or higher.
EN202	British Literature I	3.00	Fall Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.

EN203	British Literature II	3.00	Spring Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
EN204	American Literature I ▶	3.00	Fall Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
EN205	American Literature II ▶	3.00	Spring Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
EN207	Introduction to Shakespeare	3.00	Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
EN214	Introduction to Cultural Studies: Fairy Tales	3.00	Fall, Spring Prereq: EN101 English Composition IA with a grade of C or higher, or EN100 English Comp IB with a grade of C or higher.
GE101	World Geography ▶	3.00	Fall, Spring, Summer
GO100	American Government ▶	3.00	Fall, Spring, Summer
GO101	State and Local Government ▶	3.00	
GO102	International Relations ▶	3.00	Spring
GO110	Introduction to Political Science ▶	3.00	Fall
GO110H	Honors Introduction to Political Science ▶	3.00	Fall
HI101	American History 1492-1865 ▶	3.00	Fall, Spring, Summer
HI102	American History 1865-Present ▶	3.00	Fall, Spring, Summer
HI103	World History to 1600 ▶	3.00	Fall, Spring, Summer
HI104	World History Since 1600 ▶	3.00	Fall, Spring, Summer
HI122	Film History of World War II	3.00	Spring
HI201	Topics in History	3.00	
IS103	Microcomputer Literacy	2.00	Fall, Spring, Summer
IS104	Microcomputer Applications ▶	3.00	Fall, Spring, Summer
JL101	Introduction to Mass Communications ▶	3.00	Fall, Spring, Summer
LE101	Introduction to Criminal Justice ▶	3.00	Fall, Spring
MA106	College Algebra ▶	3.00	Fall, Spring, Summer Prereq: HS GPA over 3.25, or Accuplacer NextGen QuantReason, Alg,Stats Score 263 or Above, or ACT Math Score of 22 or Higher.
MA107	Plane Trigonometry ▶	3.00	Fall, Spring, Summer Prereq: MA106 College Algebra with a grade of C or higher, or ACT Math Score of 23 to 36.
MA108	Elements of Statistics ▶	3.00	Fall, Spring, Summer Prereq: HS GPA over 3.0, or Accuplacer NG QuantReason, Alg, Stats Score 255 or Above, or ACT Math Score of 19 or Higher.
MA110	Calculus ▶	3.00	Fall, Spring, Summer Prereq: MA106 College Algebra with a grade of C or higher, or ACT Math Score of 23 to 36, or MA109 Pre-Calculus Math with a grade of C or higher.
MA111	Analytical Geometry and Calculus I ▶	5.00	Fall, Spring, Summer Prereq: MA107 Plane Trigonometry with a grade of C or higher, or ACT Math Score of 25 to 36, or MA109 Pre-Calculus Math with a grade of C or higher.
MA113	Analytical Geometry and Calculus II ▶	5.00	Fall, Spring, Summer Prereq: MA111 with a grade of C or higher.
MA117	Contemporary Math ▶	3.00	Fall, Spring, Summer
MA201	Analytical Geometry and Calculus III	5.00	Fall, Summer Prereq: MA113 with a grade of C or higher.
MA206	Differential Equations ▶	3.00	Fall, Spring Prereq: MA113 with a grade of C or higher.
MU101	Music Appreciation ▶	3.00	Fall, Spring, Summer
MU106	Music Theory I ▶	3.00	Fall
MU107	Music Theory II ▶	3.00	Spring Prereq: MU106 Music Theory I.
MU127	Introduction To Jazz/Jazz Rock	3.00	Fall, Spring
MU206	Music Theory III	3.00	Fall

			Prereq: MU107 Music Theory II.
MU207	Music Theory IV	3.00	Spring Prereq: MU206 Music Theory III.
PE105	Personal and Community Health 📖	3.00	Fall, Spring, Summer
PE122	Rhythms I	2.00	Fall
PE123	Rhythms II	2.00	Spring
PE126	Conditioning and Fitness Concepts I	1.00	Fall, Spring, Summer
PE127	Conditioning and Fitness Concepts II	1.00	Fall, Spring, Summer Prereq: PE126 Conditioning & Fitness Concepts I.
PE173	Fitness for Life	1.00	Fall, Spring, Summer
PL101	Introduction to Philosophy 📖	3.00	Fall, Spring, Summer
PL103	Logic and Critical Thinking 📖	3.00	Fall, Spring
PL104	Ethics 📖	3.00	Fall, Spring, Summer
PL105	Death and Dying	3.00	Fall, Spring, Summer
PS100	General Psychology 📖	3.00	Fall, Spring, Summer
PS101	Human Relations	3.00	Fall, Spring, Summer
PS102	Human Growth and Development 📖	3.00	Fall, Spring, Summer Prereq: PS100 General Psychology.
PS201	Psychology of Personality	3.00	Fall, Spring Prereq: PS100 General Psychology with grade of C or higher.
PS202	Abnormal Psychology	3.00	Fall, Spring, Summer Prereq: PS100 General Psychology.
PY102	Weather and Climate	3.00	Spring
PY103	Physical Geology 📖	3.00	Fall, Spring, Summer
PY104L	Physical Geology Lab 📖	1.00	Fall, Spring, Summer Prereq: PY103 Physical Geology.
PY110	Physical Science 📖	5.00	Fall, Spring
PY112	General Physics I 📖	5.00	Fall Prereq: MA106 College Algebra or higher math.
PY113	General Physics II 📖	5.00	Spring Prereq: PY112 Gen Physics I.
PY201	Engineering Physics I 📖	5.00	Fall Prereq: MA111 Analytical Geometry & Calculus I, or MA112H Honors Analytical Geometry & Calculus.
PY202	Engineering Physics II 📖	5.00	Spring Prereq: PY201 Eng Phys I with grade of C or better.
RE101	New Testament Literature 📖	3.00	Spring
RE102	Old Testament Literature 📖	3.00	Fall
RE106	Introduction to World Religions 📖	3.00	Spring
SH101	Public Speaking 📖	3.00	Fall, Spring, Summer
SH103	Oral Interpretation	3.00	Spring
SH122	Voice and Diction 📖	3.00	Fall
★ SH210	Interpersonal Communication 📖	3.00	Fall, Spring, Summer
SO100	Fundamentals of Sociology 📖	3.00	Fall, Spring, Summer
SO101	Marriage and Family 📖	3.00	Fall, Spring, Summer
SO103	Stress Management	1.00	Fall, Spring, Summer
SO104	Assertiveness Training	2.00	Fall, Spring, Summer
SO111	Cultural Anthropology 📖	3.00	Fall, Spring, Summer
SO113	Cultural Diversity 📖	3.00	Fall, Spring
SO122	Introduction to Social Work 📖	3.00	Fall, Spring
SO201	Social Problems 📖	3.00	Spring, Summer Prereq: SO100 Fundamentals of Sociology.

SP100	Workplace Spanish	2.00	
SP101	Elementary Spanish I ▶	5.00	Fall, Spring, Summer
SP102	Elementary Spanish II ▶	5.00	Fall, Spring Prereq: SP101 Elementary Spanish I, or Departmental Consent, or SP104 Spanish II.
TH115	Theatre Appreciation ▶	3.00	Fall, Spring, Summer
TH116	Acting I ▶	3.00	Fall
TH118	Stagecraft ▶	3.00	Fall
TH119	Stage Makeup	3.00	
TH121	Acting II ▶	3.00	Fall Prereq: TH116 Acting I with a grade of C or better.
TH122	Voice and Diction ▶	3.00	Fall
TH123	Theatre Practicum I ▶	1.00	Fall, Spring
TR100	Technical Math	3.00	Fall, Spring
TR120	Work Ethics	2.00	Fall, Spring, Summer
<b>Machine Technology Communication Options</b>		<b>3.00</b>	
BU109	Business Communications ▶	3.00	Fall, Spring, Summer
EN100	English Composition IB ▶	3.00	Fall, Spring, Summer Prereq: EN098 Intro to College Writing with a grade of C or higher, or Accuplacer Next Generation Writing Score of 240 to 254, or HS GPA over 2.25, or ACT English Score of 17 to 19.
EN101	English Composition IA ▶	3.00	Fall, Spring, Summer Prereq: HS GPA over 3.0, or Accu NG Writing Score 255+ & Accu NG Reading Score 255+, and ACT Reading Score of 18 or above, or ACT English Score of 18 or above.
EN107	Business English Grammar & Composition	3.00	Fall, Spring
★ EN108	Career and Technical Writing	3.00	Fall, Spring
<b>Machine Technology Math Options</b>		<b>3.00</b>	
BU108	Business Mathematics	3.00	Fall, Spring, Summer
MA106	College Algebra ▶	3.00	Fall, Spring, Summer Prereq: HS GPA over 3.25, or Accuplacer NextGen QuantReason, Alg,Stats Score 263 or Above, or ACT Math Score of 22 or Higher.
MA117	Contemporary Math ▶	3.00	Fall, Spring, Summer
★ TR100	Technical Math	3.00	Fall, Spring
<b>Machine Technology Social Science Options</b>		<b>3.00</b>	
PS100	General Psychology ▶	3.00	Fall, Spring, Summer
PS100H	Honors General Psychology ▶	3.00	Fall
PS101	Human Relations	3.00	Fall, Spring, Summer
TR120	Work Ethics	2.00	Fall, Spring, Summer
<b>Machine Technology Technical Options</b>		<b>18.00</b>	
AE100	AC/DC Circuits	4.00	Fall, Spring
AE105	Industrial Wiring	3.00	Spring
AE150	Programmable Logic Controls (PLCs)	3.00	Fall, Spring Prereq: AE100 AC/DC Circuits.
AE155	Electrical Maintenance	3.00	Fall, Spring Prereq: AE100 AC/DC Circuits.
AE200	Variable Frequency Drives and Electric Motors	3.00	Fall, Spring Prereq: ME110 Fundamentals of Motor Controls.
AE202	Actuator/Sensor Systems	3.00	Fall, Spring Prereq: AE155 Electrical Maintenance.
AE205	Intermediate Programmable Logic Controllers	3.00	Fall, Spring Prereq: AE150 Programmable Logic Controllers.
AE250	Distributed/Integrated Control Systems	3.00	Spring Prereq: AE200 Variable Frequency Drives & Electric Motors, or AE205 Industrial PLCs.

AE252	Control Systems Development	3.00	Fall, Spring Prereq: AE200 Variable Frequency Drives & Electric Motors, or AE205 Industrial PLCs.
AE255	Industrial Robotics	3.00	Fall, Spring Prereq: AE150 Programmable Logic Controllers.
BU100	Small Business Accounting	3.00	Fall, Spring, Summer
BU105	Introduction to Business ▶	3.00	Fall, Spring, Summer
BU105H	Honors Introduction to Business ▶	3.00	Fall
BU107	Personal Finance ▶	3.00	Fall, Spring, Summer
BU107H	Honors Personal Finance	3.00	
BU127	Beginning Keyboarding	3.00	Fall, Spring
BU141	Sales Management	3.00	Fall, Spring, Summer
BU151	Introduction to Entrepreneurship	1.00	Fall, Spring
BU152	Marketing Applications for Entrepreneurs	1.00	Fall, Spring
BU153	Financial Management for Entrepreneurs	1.00	Fall, Spring
BU154	Business Management for Entrepreneurs	1.00	Fall, Spring
BU156	Developing the Business Plan	1.00	Fall, Spring
BU203	Management ▶	3.00	Fall, Spring, Summer
DR100	Computer Aided Drafting I	3.00	Fall, Spring, Summer
DR101	Technical Drafting	3.00	Fall, Spring
DR102	Machine Drafting	5.00	Fall, Spring Prereq: DR100 Computer Aided Drafting I.
DR102H	Honors Machine Drafting	5.00	Prereq: DR100 Computer Aided Drafting I.
DR119	Parametric Modeling I: Autodesk Inventor	3.00	Fall, Spring
DR211	Computer Aided Drafting II	3.00	Fall, Spring Prereq: DR100 Computer Aided Drafting I.
DR212	Architectural Drafting I	3.00	Fall, Spring
DR213	Architectural Drafting II	3.00	Spring Prereq: DR212 Architectural Drafting I.
DR215	Civil Drafting	3.00	Fall, Spring Prereq: DR100 Computer Aided Drafting I.
DR219	Parametric Modeling II: Autodesk Inventor	3.00	Fall Prereq: DR119 Parametric Modeling I: Autodesk Inventor.
DR220	Computer Drafting Capstone	3.00	Fall, Spring Prereq: DR119 Parametric Modeling I: Autodesk Inventor, or Departmental Consent, and DR212 Architectural Drafting I.
IS103	Microcomputer Literacy	2.00	Fall, Spring, Summer
IS104	Microcomputer Applications ▶	3.00	Fall, Spring, Summer
ME106	Industrial Fluid Power	3.00	Fall, Spring
ME110	Fundamentals of Motor Controls	3.00	Fall, Spring Prereq: AE100 AC/DC Circuits.
ME112	Heating System Fundamentals	3.00	Fall, Spring
ME114	Renewable Energy Technology	3.00	
ME116	Commercial Refrigeration	4.00	Spring
ME117	Commercial Heating and Air Conditioning	4.00	Spring Prereq: ME115 HVAC Fundamentals, and EE203 Instruments & Measurements, or ME116 Commercial Refrigeration.
ME118	Renewable Energy Technology Systems Analysis	4.00	Prereq: ME114 Renewable Energy Technology, and AE155 Electrical Maintenance, and ME115 HVAC Fundamentals.
ME119	Solar PV Fundamentals	3.00	Fall, Spring
ME122	Solar PV Intermediate	3.00	Prereq: ME119 Solar PV Fundamentals.
ME124	Renewable Energy Technology Maintenance	4.00	Prereq: ME114 Renewable Energy Technology, and AE155 Electrical Maintenance, and ME115 HVAC Fundamentals.
ME125	Engineering Technology Internship	3.00	Fall

ME129	Mechanical Maintenance Skills	3.00	Fall, Spring
ME131	EPA 608	1.00	Fall
ME132	HVAC Load Calculations	1.00	Fall
ME133	HVAC Duct Sizing	1.00	Fall
ME134	HVAC Code Requirements	1.00	Fall
ME136	Solar PV Advanced	3.00	Prereq: ME119 Solar PV Fundamentals, and ME141 Solar Battery Fundamentals, and ME122 Solar PV Intermediate.
ME140	Low Pressure Boilers	3.00	Spring
ME141	Solar Battery Fundamentals	3.00	Prereq: ME119 Solar PV Fundamentals.
ME142	Solar Battery Intermediate	3.00	Prereq: ME119 Solar PV Fundamentals, and ME141 Solar Battery Fundamentals, and ME122 Solar PV Intermediate.
WE100	Basic Welding	3.00	Fall, Spring
WE102	Welding Blueprint Reading	3.00	Fall, Spring
WE104	Shielded Metal Arc Welding	3.00	Fall
WE105	Shielded Metal Arc Welding II	3.00	Fall, Spring Prereq: WE104 SMAW w/Grade of C or Higher, or Departmental Consent.
WE106	Cutting Processes for Welding	2.00	Fall
WE110	Gas Metal Arc Welding	3.00	Fall, Spring
WE111	Gas Metal Arc Welding II	3.00	Fall, Spring Prereq: WE110 Gas Metal Arc Welding w/Grade of C or Higher.
WE112	Gas Tungsten Arc Welding	3.00	Fall, Spring
WE113	Gas Tungsten Arc Welding II	3.00	Spring Prereq: WE112 GTAW w/Grade of C or Higher.
WE115	Welding Layout and Calculations	2.00	Fall, Spring
WE116	Flux Cored Arc Welding	2.00	Spring Prereq: WE110 Gas Metal Arc Welding w/Grade of C or Higher, or Departmental Consent, and WE111 Gas Metal Arc Welding II w/Grade of C or Higher.
WE117	Welding Inspection and Qualification I	2.00	Fall, Spring
WE118	Industrial Robotic Welding	2.00	Spring Prereq: WE110 Gas Metal Arc Welding, or Departmental Consent.
WE128	Welding Metallurgy	2.00	Fall, Spring

**Total Credits: 63.00**